

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

K-1968

Applicant : Yasumi Sato et al  
Title : PLASMA-ENHANCED PROCESSING APPARATUS  
Serial No. :  
Filed : March 16, 2001  
Group Art Unit :

Hon. Commissioner of Patents and Trademarks  
Washington, D. C. 20231

March 16, 2001

PRELIMINARY AMENDMENT

Sir:

Preliminary to examination, please amend the claims 3 and 7 as attached herewith.

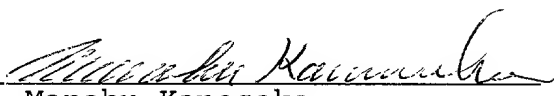
REMARKS

The preliminary amendment has been filed to change multiple dependency of claims 3 and 7 to single dependency.

Respectfully submitted,

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by

  
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What is claimed is:

1. A plasma-enhanced processing apparatus, comprising;  
a process chamber in which a substrate is processed,  
a pumping system that pumps said process chamber,  
a gas-introduction system that introduces process gas into  
said process chamber,

a plasma-generation means that generates plasma in said  
process chamber by applying energy to said process gas,

a substrate holder that holds said substrate in said  
process chamber,

wherein an opposite electrode facing to said substrate held  
by said substrate holder is provided, and the opposite electrode  
comprises a clamping mechanism that clamps the front board to  
support said front board.

2. A plasma-enhanced processing apparatus as claimed in claim  
1, wherein;

said opposite electrode comprises a main body, and a  
cooling mechanism that cools said front board via said main  
body.

3. (Amended) A plasma-enhanced processing apparatus as  
claimed in claim 1, wherein;

said clamping mechanism clamps the periphery of said front

board by a clamping plate in surface contact with said front board .

4. A plasma-enhanced processing apparatus as claimed in claim 3, wherein;

said front board has a step at said periphery that is sandwiched by said main board and said clamping plate, and said clamping plate is flush with said front board.

5. A plasma-enhanced processing apparatus as claimed in claim 1, comprising;

a protector covering a surface of said clamping mechanism, wherein said surface is not exposed to said plasma.

6. A plasma-enhanced processing apparatus as claimed in claim 1, wherein;

said clamping mechanism clamps the periphery of said front board by a clamping plate in surface contact on said front board, and said protector is flush with said front board.

7. (Amended) A plasma-enhanced processing apparatus as claimed in claim 1, wherein;

said front board is made of silicon poly-crystal or silicon mono-crystal.

8. A plasma-enhanced processing apparatus as claimed in claim 3, wherein;

said clamping plate is screwed on a member except said front board to press said front board onto said main body, and screwing torque is 1Nm or more.

9. A plasma-enhanced processing apparatus as claimed in claim 6, wherein;

said clamping plate is screwed on a member except said front board to press said front board onto said main body, and screwing torque is 1Nm or more.

10. A plasma-enhanced processing apparatus as claimed in claim 1, wherein;

a sheet made of carbon is inserted between said main body and said front board.

What is claimed is:

1. A plasma-enhanced processing apparatus, comprising;

- a process chamber in which a substrate is processed,
- a pumping system that pumps said process chamber,
- a gas-introduction system that introduces process gas into said process chamber,
- a plasma-generation means that generates plasma in said process chamber by applying energy to said process gas,
- a substrate holder that holds said substrate in said process chamber,

wherein an opposite electrode facing to said substrate held by said substrate holder is provided, and the opposite electrode comprises a clamping mechanism that clamps the front board to support said front board.

2. A plasma-enhanced processing apparatus as claimed in claim 1, wherein;

said opposite electrode comprises a main body, and a cooling mechanism that cools said front board via said main body.

*amended*  
3. A plasma-enhanced processing apparatus as claimed in claim 1 ~~or 2~~, wherein;

said clamping mechanism clamps the periphery of said front

board by a clamping plate in surface contact with said front board .

4. A plasma-enhanced processing apparatus as claimed in claim 3,  
wherein;

said front board has a step at said periphery that is sandwiched by said main board and said clamping plate, and said clamping plate is flush with said front board.

5. A plasma-enhanced processing apparatus as claimed in claim 1,  
comprising;

a protector covering a surface of said clamping mechanism,  
wherein said surface is not exposed to said plasma.

6. A plasma-enhanced processing apparatus as claimed in claim 1,  
wherein;

said clamping mechanism clamps the periphery of said front board by a clamping plate in surface contact on said front board, and said protector is flush with said front board.

amended  
7. A plasma-enhanced processing apparatus as claimed in claim 1,  
~~2, 3, 4, 5 or 6,~~ wherein;

said front board is made of silicon poly-crystal or silicon mono-crystal.

8. A plasma-enhanced processing apparatus as claimed in claim 3,  
wherein;

said clamping plate is screwed on a member except said front  
board to press said front board onto said main body, and screwing  
torque is 1Nm or more.

9. A plasma-enhanced processing apparatus as claimed in claim 6,  
wherein;

said clamping plate is screwed on a member except said front  
board to press said front board onto said main body, and screwing  
torque is 1Nm or more.

10. A plasma-enhanced processing apparatus as claimed in claim  
1, wherein;

a sheet made of carbon is inserted between said main body  
and said front board.